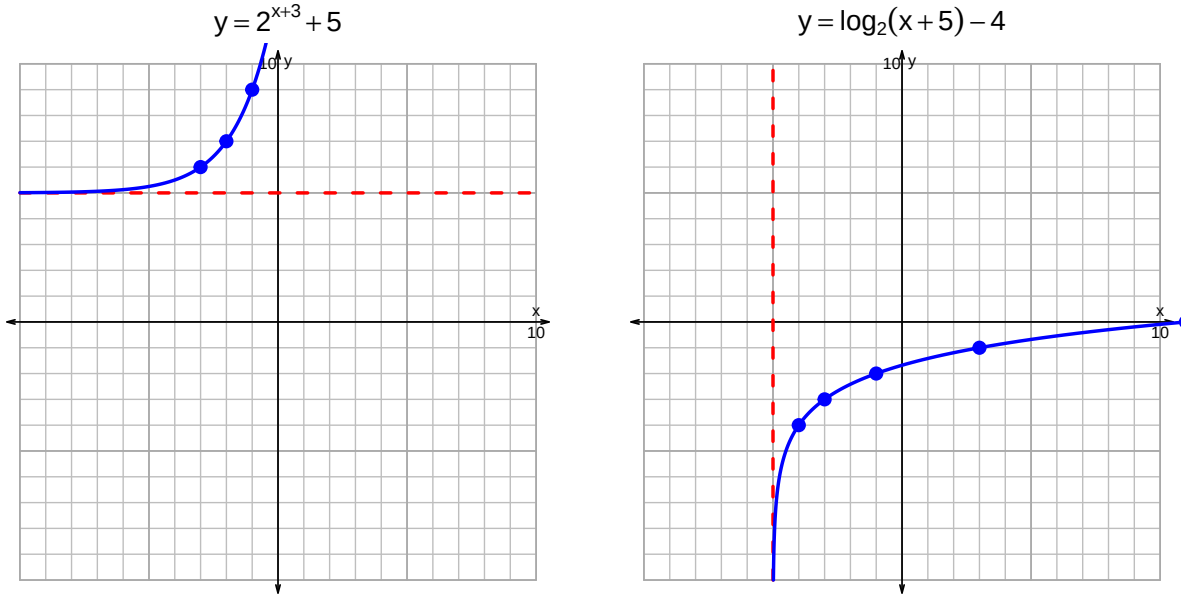
Name: Date:

S18QUIZ: EXP LOG (SLTN v268)

1. Graph $y = 2^{x+3} + 5$ and $y = \log_2(x+5) - 4$ on the grids below. Also, draw any asymptotes with dotted lines.



2. Write (but do not evaluate) the solution to the equation below by writing a logarithmic expression.

$$29 = \left(\frac{4}{3}\right) \cdot 10^{-7t/5}$$

Divide both sides by $\frac{4}{3}$.

$$\frac{29 \cdot 3}{4} = 10^{-7t/5}$$

Take log, base 10, of both sides.

$$\log_{10}\left(\frac{29 \cdot 3}{4}\right) = \frac{-7t}{5}$$

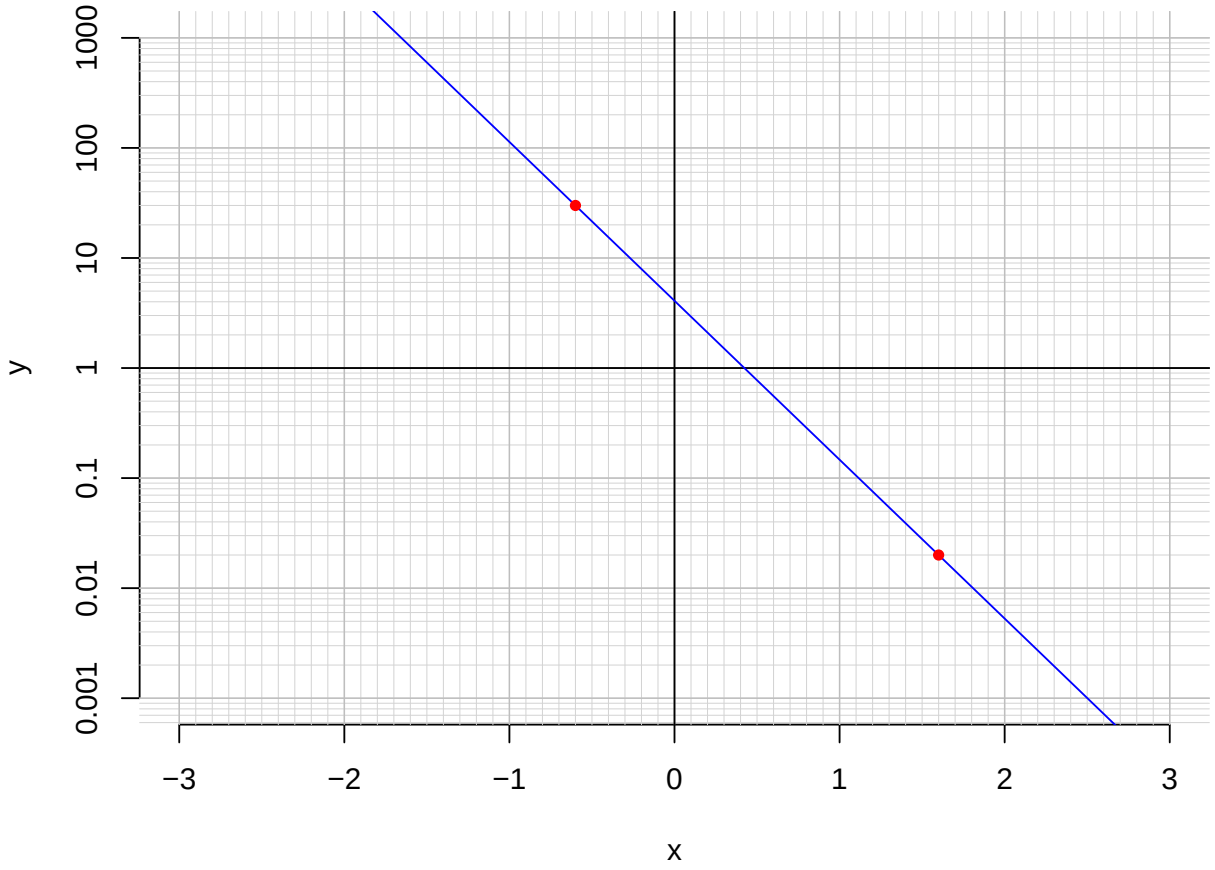
Divide both sides by $\frac{-7}{5}$.

$$\frac{-5}{7} \cdot \log_{10}\left(\frac{29 \cdot 3}{4}\right) = t$$

Switch sides.

$$t = \frac{-5}{7} \cdot \log_{10}\left(\frac{29 \cdot 3}{4}\right)$$

3. An exponential function $f(x) = 4.08 \cdot e^{-3.32x}$ is graphed below on a semi-log plot.



a. Using the plot above, evaluate $f(-0.6)$.

$$f(-0.6) = 30$$

b. Express $f^{-1}(x)$, the inverse of f.

$$f^{-1}(x) = \frac{-1}{3.32} \cdot \ln\left(\frac{x}{4.08}\right)$$

c. Using the plot above, evaluate $f^{-1}(0.02)$.

$$f^{-1}(0.02) = 1.6$$